

SUNSHINE AND CLOUDINESS.

The distribution of sunshine is graphically shown on Chart VII, and the numerical values of average daylight cloudiness, both for individual stations and by geographical districts, appear in Table I.

The averages for the various districts, with departures from the normal, are shown in the table below:

Average cloudiness and departures from the normal.

| Districts. | Average. | Departure from the normal. | Districts. | Average. | Departure from the normal. |
|--------------------------------|----------|----------------------------|------------------------|----------|----------------------------|
| New England..... | 5.4 | - 0.1 | Missouri Valley | 5.2 | - 0.2 |
| Middle Atlantic..... | 5.1 | - 0.1 | Northern Slope..... | 5.2 | - 0.2 |
| South Atlantic..... | 3.9 | - 0.5 | Middle Slope..... | 5.4 | + 0.6 |
| Florida Peninsula..... | 4.3 | - 0.2 | Southern Slope..... | 4.6 | + 0.1 |
| East Gulf..... | 4.7 | + 0.4 | Southern Plateau | 2.6 | + 0.4 |
| West Gulf..... | 5.2 | + 0.3 | Middle Plateau | 4.2 | + 0.1 |
| Ohio Valley and Tennessee..... | 4.8 | - 0.3 | Northern Plateau | 6.3 | + 0.7 |
| Lower Lake..... | 4.9 | - 0.3 | North Pacific..... | 7.2 | + 1.3 |
| Upper Lake..... | 5.9 | + 0.4 | Middle Pacific | 4.3 | + 0.1 |
| North Dakota..... | 5.0 | - 0.3 | South Pacific..... | 3.6 | - 0.6 |
| Upper Mississippi Valley..... | 5.5 | + 0.3 | | | |

ATMOSPHERIC ELECTRICITY.

Numerical statistics relative to auroras and thunderstorms are given in Table IV, which shows the number of stations from which meteorological reports were received, and the number of such stations reporting thunderstorms (T) and auroras (A) in each State and on each day of the month, respectively.

Thunderstorms.—Reports of 6,425 thunderstorms were received during the current month as against 2,479 in 1901 and 2,404 during the preceding month.

The dates on which the number of reports of thunderstorms for the whole country was most numerous were: 24th, 478; 25th, 412; 23d, 368.

Reports were most numerous from: Illinois, 428; Missouri, 426; Ohio, 372; Iowa, 370.

A remarkable number of thunderstorms occurred in May, 1902, as shown by the following numbers recorded for each May during the period 1894 to 1902: 1894, number of thunderstorms reported, 3,657; 1895, 2,969; 1896, 4,795; 1897, 3,001; 1898, 4,545; 1899, 5,305; 1900, 3,855; 1901, 2,479; 1902, 6,425.

Auroras.—The evenings on which bright moonlight must have interfered with observations of faint auroras are assumed to be the four preceding and following the date of full moon, viz: 18th to 26th.

In Canada: Thunderstorms were reported as follows: St. John, New Brunswick, 23; Halifax, 24; Grand Manan, 8, 25; Yarmouth, 7; Quebec, 23; Montreal, 22, 23; Bissell, 22, 25, 26; Ottawa, 1, 9, 23, 24, 26; Kingston, 7, 23, 24; Toronto, 9, 22; White River, 19, 22, 23; Port Stanley, 2, 4, 6, 7, 19, 20, 22, 23, 25, 26; Parry Sound, 6, 8, 20, 24, 25; Port Arthur, 29; Winnipeg, 18; Minnedosa, 7, 18, 19, 20, 21; Qu'Appelle, 6, 17, 18, 20, 29; Medicine Hat, 10, 15, 29; Swift Current, 19, 23, 30; Banff, 15; Battleford, 5, 28; Kamloops, 13; New Westminster, 27; Barkerville, 9, 10, 22, 27.

Auroras were reported as follows: White River, 29; Minnedosa, 9, 30.

WIND.

The maximum wind velocity at each Weather Bureau station for a period of five minutes is given in Table I, which also gives the altitude of Weather Bureau anemometers above ground.

Following are the velocities of 50 miles and over per hour registered during the month:

Maximum wind velocities.

| Stations. | Date. | Velocity. | Direction. | Stations. | Date. | Velocity. | Direction. |
|----------------------------|-------|-----------|------------|---------------------------|-------|-----------|------------|
| Amarillo, Tex | 17 | 53 | w. | Mount Tamalpais, Cal .. | 17 | 75 | n.w. |
| Do..... | 21 | 56 | sw. | Do..... | 18 | 69 | n.w. |
| Bismarck, N. Dak | 19 | 50 | se. | Do..... | 19 | 69 | n.w. |
| Buffalo, N. Y | 8 | 50 | sw. | Do..... | 26 | 62 | n.w. |
| Do..... | 22 | 50 | w. | Do..... | 28 | 56 | n.w. |
| Chicago, Ill..... | 10 | 53 | se. | Do..... | 29 | 76 | n.w. |
| Do..... | 25 | 54 | ne. | Do..... | 30 | 60 | n.w. |
| Cleveland, Ohio..... | 4 | 58 | w. | Do..... | 31 | 52 | n.w. |
| Do..... | 19 | 50 | n. | New York, N. Y..... | 9 | 64 | n.w. |
| Do..... | 22 | 50 | w. | Point Reyes Light, Cal .. | 2 | 55 | n.w. |
| Denver, Colo | 1 | 68 | n.w. | Do..... | 16 | 76 | n.w. |
| Dodge, Kans | 17 | 53 | se. | Do..... | 17 | 90 | n.w. |
| El Paso, Tex | 18 | 50 | sw. | Do..... | 18 | 110 | n.w. |
| Fort Smith, Ark | 18 | 50 | sw. | Do..... | 19 | 75 | n.w. |
| Huron, S. Dak | 1 | 51 | se. | Do..... | 20 | 57 | n.w. |
| Minneapolis, Minn | 1 | 50 | se. | Do..... | 29 | 66 | n.w. |
| Moorhead, Minn | 1 | 52 | se. | Do..... | 30 | 65 | n.w. |
| Mount Tamalpais, Cal | 7 | 50 | n.w. | Do..... | 31 | 62 | n.w. |
| Do..... | 8 | 59 | n.w. | St. Louis, Mo..... | 4 | 52 | sw. |
| Do..... | 11 | 50 | n.w. | San Antonio, Tex..... | 18 | 65 | w. |
| Do..... | 16 | 86 | n.w. | Sioux City, Iowa..... | 20 | 50 | s. |

DESCRIPTION OF TABLES AND CHARTS.

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For description of tables and charts see page 570 of REVIEW for December, 1901.

TABLE II.—*Climatological record of voluntary and other cooperating observers—Continued.*

| Stations. | Temperature. (Fahrenheit.) | | | Precipita- tion. | | Stations. | Temperature. (Fahrenheit.) | | | Precipita- tion. | |
|--------------------------------------|-------------------------------|-----------------|-------------------|--------------------------|-------------------------|-----------|-------------------------------|----------|-------|--------------------------|-------------------------|
| | Maximum. | Minimum. | Mean. | Rain and melted snow. | Total depth of snow. | | Maximum. | Minimum. | Mean. | Rain and melted snow. | Total depth of snow. |
| <i>Porto Rico—Cont'd.</i> | | | | | | | | | | | |
| Hacienda Perla | 90 | 60 | 77.9 | 19.62 | Ins. | Ins. | | | | | |
| Humacao | 89 | 71 | 81.4 | 18.63 | | | | | | | |
| Isabela | 89 | 69 | 78.4 | 6.76 | | | | | | | |
| Juana Diaz | 90 ¹ | 68 ¹ | 79.0 ¹ | 12.16 | | | | | | | |
| La Isolina | 87 | 64 | 75.2 | 25.56 | | | | | | | |
| Las Marinas | 87 | 66 | 76.6 | 31.87 | | | | | | | |
| Manati | 93 | 64 | 78.8 | 5.89 | | | | | | | |
| Maunabo | 92 | 71 | 80.8 | 7.65 | | | | | | | |
| Mayaguez | 93 | 67 | 79.6 | 16.56 | | | | | | | |
| Morovis | 94 | 63 | 77.3 | 24.07 | | | | | | | |
| Ponce | 89 | 63 | 77.6 | 7.09 | | | | | | | |
| Rio Piedras | | | | 9.20 | | | | | | | |
| San German | 94 | 69 | 82.0 | 15.62 | | | | | | | |
| San Lorenzo | 91 | 66 | 78.2 | 12.30 | | | | | | | |
| San Salvador | 87 | 62 | 74.3 | 17.86 | | | | | | | |
| Santa Isabel | 90 | 68 | 79.0 | 6.45 | | | | | | | |
| Utuado | 95 | 62 | 79.3 | 18.89 | | | | | | | |
| Vieques | 91 | 72 | 83.5 | 3.90 | | | | | | | |
| Yauco | 88 | 67 | 77.9 | 10.59 | | | | | | | |
| <i>Mexico.</i> | | | | | | | | | | | |
| Ciudad P. Diaz | 98 | 54 | 81.2 | 2.62 | | | | | | | |
| Coatzacoalcos | 98 | 70 | 81.6 | 2.50 | | | | | | | |
| Leou de Aldamas | 94 | 50 | 72.5 | 1.16 | | | | | | | |
| Vera Cruz | 89 | 70 | 81.4 | 0.90 | | | | | | | |
| <i>New Brunswick.</i> | | | | | | | | | | | |
| St. John | 66 | 33 | 47.8 | 4.70 | | | | | | | |
| <i>Late reports for April, 1902.</i> | | | | | | | | | | | |
| <i>California.</i> | | | | | | | | | | | |
| Kent | | | ° | | | 78° | 36° | 54.5° | 4.62 | Ins. | Ins. |
| Kernville | | | | | | | | | | | 0.74 |
| West Point | | | | | | | | | | | 3.88 |
| <i>Colorado.</i> | | | | | | | | | | | |
| Fort Collins | | | 80 | | | 18 | 45.7 | 0.61 | | | |
| <i>Indian Territory.</i> | | | | | | | | | | | |
| Roff | | | 92 ^t | | | 32° | 61.0° | 3.15 | | | |
| <i>Michigan.</i> | | | | | | | | | | | |
| Pontiac | | | 84 | | | 23 | 44.9 | | | | |
| <i>South Carolina.</i> | | | | | | | | | | | |
| Blackville | | | 91 | | | 34 | 62.7 | 3.21 | | | |
| <i>Tennessee.</i> | | | | | | | | | | | |
| Arlington | | | 86 | | | 34 | 58.0 | 2.26 | | | |
| Brownsville | | | 86 | | | 30 | 55.4 | 2.23 | | | |
| Covington | | | 84 | | | 35 | 59.0 | 1.45 | | | |
| Jonesboro *1 | | | 80 | | | 38 | 55.2 | 2.55 | | | |
| Milan | | | 88 | | | 33 | 59.8 | 3.39 | | | |
| <i>Washington.</i> | | | | | | | | | | | |
| Vashon | | | 67 | | | 33 | 48.0 | 2.41 | | | |

EXPLANATION OF SIGNS.

*Extremes of temperature from observed readings of dry thermometer.

A numeral following the name of a station indicates the hours of observation from which the mean temperature was obtained, thus:

¹ Mean of 7 a. m. + 2 p. m. + 9 p. m. + 9 p. m. + 4.

² Mean of 8 a. m. + 8 p. m. + 2.

³ Mean of 7 a. m. + 7 p. m. + 2.

⁴ Mean of 6 a. m. + 6 p. m. + 2.

⁵ Mean of 7 a. m. + 2 p. m. + 2.

⁶ Mean of readings at various hours reduced to true daily mean by special tables.

The absence of a numeral indicates that the mean temperature has been obtained from daily readings of the maximum and minimum thermometers.

An italic letter following the name of a station, as "Livingston *a*," "Livingston *b*," indicates that two or more observers, as the case may be, are reporting from the same station. A small roman letter following the name of a station, or in figure columns, indicates the number of days missing from the record; for instance "*n*" denotes 14 days missing.

No note is made of breaks in the continuity of temperature records when the same do not exceed two days. All known breaks, of whatever duration, in the precipitation record receive appropriate notice.

CORRECTIONS.

April, 1902, under head of late reports for March, 1902, page 198, cut out all data for Blackville, S. C.

NOTE.—The following changes have been made in the names of stations: Abshers, N. C., changed to Brewers.

